SHVARTSBERG, Ya.;KOZITSKAYA, K.P.;DERKACH,V.M.;ZAYTSEVA, S.M.

Treatment of scleroma with streptomycin. Vest. otorinolar., Moskwa
14 no.2:65-67 Mar-Apr 1952.   (CLML 22:1)

1. Honored Worker in Science, Professor for Shvartsberg; Assistant for
Kozitskaya; Departmental Physician for Derkach; Senior Laboratory Worker
for Zaytseva. 2. Of the Clinic for Diseases of the Ear, Throat, and Nose
(Director -- Honored Worker in Science Prof. Ya. A. Shvartsberg), Kiev
Medical Institute.

DERKACH, V. N.

USSR/Pharmacology. Pharmacognosy. Toxicology -
    Chemotherapeutic Preparations.   T-9

Abs Jour   : Referat Zhur - Biologiya., No 16, 1957, 71878

Author   : Derkach, V.N.
Inst   :
Title   : The Study of Antitoxic Properties of Antibiotics. Report
               II. The Tests of Combined Treatment of Botulism Intoxica-
               tion with Antibiotics and Antibotuline Serum.

Orig Pub   : Tr. kharkovsk. n. I. in-ta, vaccin i syvorotok, 1956, 23,
               35-42

Abstract   : 1-2 DL_m of botulin toxin were injected intravenously into
               mice and in 15 minutes to 8 hours 0.8-1/6 mg of biomycine,
               0.3 mg of sanzine, 0.6 mg levomycetine were administered.
               A satisfactory therapeutic effect was obtained.
               The effect of antibiotics was increased if antibotulism
               serum was added.

Card 1/1   - 82 -

DERKACH, V. N.

COUNTRY   : USSR
CATEGORY   : Microbiology

ABS. JOUR   : :Ref Zhur-Biologiya, No.4, 1959,   No. 14462

AUTHOR   : Derkach, V.N.
INST.   :

TITLE   : A Study of Antitoxic Properties of Antibiot-
                 ics. Ill. The Detoxifying and Disintoxify-
                 ing properties of Antibiotics in Relation to*

ORIG. PUB.   : Tr. Khar'kovsk. n.-i. in-ta vaktsin i syvorotck
                 1957, 35-64

ABSTRACT   : III. Varying doses of antibiotics were added
                 to 1 DLm of tetanus toxin in 0.1 ml of physi-
                 ological solution: biomycin, senazin, levomy-
                 cetin, and syntomycin; after 45 minutes ex-
                 posure in a 37 degree incubator the suspen-
                 sion was injected into the rear extremity of
                 white mice. All of the control mice, which
                 received pure toxin without antibiotics per-
                 ished in 2 - 3 days. A varying number of the
                 experimental mice survived, depending on the

CARD: * Tetanus Toxin. IV. Experiment of Combined
                 Therapy with Antibiotics and Antitetanus Ser-
                 a in Experimental Tetanus Intoxication. V.
                 The Detoxifying and Disintoxifying Proper.*

COUNTRY
CATEGORY

ABS. JOUR.

AUTHOR
INST.   No. 14862
TITLE   .* ties of Antibiotics in Respect to Diph-
                theria Toxin.   VI.   T he Detoxifying and Dis-
                intoxifying Properties of Antibiotics in Re-*

ORIG. PUB.

ABSTRACT   :form and amount of antibiotic. The most ef-
                fective in the neutralization experiments of
                tetanus toxin in vitro was biomycin, the
                least - syntomycin. The disintoxifying ef-
                fect of the antibiotics was studied in mice
                which received 1 DLm of tetanus toxin intra-
                muscularly and immediately afterward an anti-
                biotic in different dosages. The combined
                administration of antibiotics (sanazin and
                :levomycetin, sanazin and biomycin, levomycetin

                * spect to ~taphylococcal Toxin.
CARD: 2/13

COUNTRY   :
CATEGORY   :

ABS. JOUR.   : .   No. 14862

AUTHOR   :
INST,   :

TITLE   :

ORIG. PUB.   :

ABSTRACT   : and biomycin) gave better results than separ-
ate application. The best effect (63.33%
survival) was obtained with the combination
of sanazin (0.4 mg) and levomycetin (0.6 mg).
IV. The therapeutic effect of antibiotics --
biomycin and levomycetin in a dosage of 0.8
mg and sanazin in a dosage of 0.4 mg --
on experimental tetanus infection was studied
in white mice. The anims were injected in
the rear extremity intra.   erly with 1 DLm

CARD: 3/13

38

COUNTRY
CATEGORY

ARE. JOUR

AUTHOR
INST.   No. 14862
TITLE   :

ORIG. PUB.

ABSTRACT   :of tetanus toxin and then at various inter-
             vals of time from 15 minutes to 8 hours. An
             antibiotic was injected in this same leg sep-
             arately or in combination with antitetanus
             serum (0.01 AU). Part of the animals sur-
             vived, depending on the time of injection and
             the kind of antibiotic. A simultaneous in-
             jection of antitetanus serum strengthened the
             therapeutic effect. Biomycin and serum gave
            :the best results - with injection 15 minutes

CARD: 4/13

COUNTRY   :
CATEGORY   :

ABS. JOUR.   :   No. 14862

AUTHOR   :
INST.   :

TITLE   : xxxxxxx xxxxixxxxsxxx xxxxxxxxixxxxxxyxxxd

ORG. PUB.   :

ABSTRACT   : after infection 93.3% of the mice survived,
                with injection after 8 hours 48.61% survived.
                  V. After intracerebral injection oofwhite
                mice with 3 - 8 DLm for guinea pigs of diph-
                theria toxin a characteristic picture of
                diphtheria intoxication developed in them,
                terminating on the 3 - 9 day with death. To
                study to detoxifying effect on antibiotics on
                diphtheria toxin, 5 DLm for guinea pigs was
                : mixed with 0.4, 0.2, and 0.1 mg of biomycin,

CARD: 5/13
                          39

COUNTRY
CATEGORY

ABS. JOUR. :

AUTHOR
INST.   No. 14862
TITLE   :

ORIG. PUB. :

ABSTRACT   :syntomycin, levomycetin and 300, 150, and
             75 i.u. of penicillin and placed in a 37 de-
             gree incubator for 3, 6, or 24 hours. The in-
             dicated antibiotics were harmless for mice
             with intracerebral injection; sanazin proved
             toxic and was eliminated from the experiment.
             After exposure in the incubator the mixture
             was injected into test mice intracerebrally.
             Biomycin in a dosage of 0.4 mg and levomyce-
             :tin in a dose of 0.1 mg gave the maximal de-

CARD: 6/13

COUNTRY   :
CATEGORY   :

ABS. JOUR.   :   No. 14862

AUTHOR   :
INST,   :

TITLE   :

ORIG. PUB.   :

ABSTRACT   : toxifying effect after a 6-hour treatment in
               the incubator (87.5 and 100% survival). By
               combining the action of the weaker antibiotics
               the percentage of survival also rose to 100.
               Immediately after intracerebral injection of
               5 DLm for guinea pigs of diphtheria toxin the
               white mice were administered the antibiotics
               separately and in combination by the oral,
               intramuscular, and intravenous routes. Levo-
             : mycetin and syntomycin gave the best results

CARD: 7/13

COUNTRY
CATEGORY

ABS. JOUR.

AUTHOR
INST.
TITLE

No. 14862

ORIG. PUB.

ABSTRACT : with oral administration, protecting from death 57.1 and 50% of the mice. With combined administration the effectiveness of the antibiotics increased 75% for the combination of levomycetin + sanazin, and 81.25% for syntomycin + sanazin. With intramuscular injection the best results were obtained from biomycin (71.8%) and a combination of biomycin, syntomycin, and penicillin (85%).
; With intravenous injection the most effective

CARD: 8/13

COUNTRY   :
CATEGORY   :

ABS. JOUR. :.   No. 14862

AUTHOR   :
INST.   :
TITLE   :

ORIG. PUB. :

ABSTRACT   : was sanazin (a dose of 0.3 mg protected from
              death 78.6% of the mice). The combination of
              biomycin + levomycetin or sanazin, sanazin +
              penicillin, levomycetin, or syntomycin gave
              100% survival.
                VI. The action of penicillin, biomycin,
              sanazin, syntomycin, and levomycetin on
              staphylococcal toxin was studied in vitro
              (hemolytic activity) and in vivo on rabbits
            : (dermonecrotic and lethal activity). As for

CARD: 9/13

COUNTRY
CATEGORY

ABS. JOUR.

AUTHOR   :   14862
INST.
TITLE

ORIG. PUB.   :

ABSTRACT   :hemolytic activity, biomycin, which in a dose
                 of 0.8 amlmost completely removed the hemoly-
                 tic activity of the toxin, proved to be the
                 most effective. Biomycin and sanazin exhibi-
                 ted the greatest activity in respect to the
                 dermonecrotic property of the toxin, which was
                 completely neutralized by a dose of 0.3 mg
                 after a 3-hour exposure in the incubator. The
                 action of the other antibiotics was consider-
                :ably weaker. The combined effect of antibi-

CARD: 10/13   .

COUNTRY   :
CATEGORY   :

ABS. JOUR. : :   No. 14462

AUTHOR   :
INST.   :
TITLE   :

ORIG. PUB. :

ABSTRACT   : biotics enhanced their effectiveness: the
               combination of half doses of antibiotics
               completely removed the necrotic function of
               the function, while taken separately these
               doses only decreased it. There was also a
               difference in effectiveness in respect to the
               lethal character of the tested antibiotics:
               biomycin protected 8 out of 10 from death,
               sanazin 5 out of 6, syntomycin 2 out of 5,
             : and penicillin 1 out of 6 of the rabbits

CARD: 11/13

COUNTRY
CATEGORY

ABS. JOUR.

14862

AUTHOR
INST.
TITLE

ORIG. PUB.

ABSTRACT   :used in the experiment. levomycetin did not
have any detoxifying action on the lethal
function. The effectiveness of antibiotics
on the lethal function of the toxin was also
significantly raised by the combined action:
the combination of biomycin with sanazin, syn-
tomycin, or penicillin protected from death
all of the rabbits used in the experiment,
while biomycin + levomycetin protected 87.5%.
:The disintoxifying effect of the most effec-

CARD: 12/13

COUNTRY   :
CATEGORY   :

ABS. JOUR :   No.14862

AUTHOR   :
INST.   :
TITLE   :

ORIG. PUB. .

ABSTRACT   : tive antibiotics on the lethal function of
             the staphylococcal toxin was studied by
             by means of their injection intravenously
             following a lethal dose of toxin. Biomycin
             protected 82.5% of the animals, sanazin 40%,
             syntomycin 33.33%, biomycin + sanazin 40%,
             biomycin + syntomycin 75%, and sanazin + syn-
             tomycin 60%. -- M.A. Gruzman

             .   Report II, see Ref. Zhur. Biologiya, 1957,
                  71878

CARD: 13/13

USSR/Microbiology - Microbes Pathogenic in Man and Animals.   F.

Abs Jour   : Ref Zhur - Biol., No 15, 1958, 67300

Author   : Derkach, V.N.
✳ Inst   :_____
Title   : On the Problem of Differentiating Pathogenous and Non-
               Pathogenous Staphylococci.

Orig Pub   : Zh. mikrobiol., epidemiol. i immunobiol., 1957, No 12, 12-
               14.

Abstract   : No abstract.

         ✳ Iz KHAR'KOVSKOGO INSTITUTA VAKTSIN I SYVOROTOK IMENI MECHNIKOVA I
           KAFEDRY MIKROBIOLOGII KHAR'KOVSKOGO MEDITSINSKOGO ̶ INSTITUTA.

Card 1/1

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DERKACH, V.N., Doc Med Sci—(diss) "*Detoxicating* effect of antibiotics
on *certain* bacterial toxins. (Experimental study)." Khar'kov, 1958. 20 pp
(Min of Health UkSSR. Khar'kov Stomatological Inst), 300 copies. List of
author's works, pp 19-20 (19 titles) (KL,22-58,113)

— /4 —

DERKACH, V.N.

Experimental basis for the combined use of antibiotics in staphylococcal diseases. The combined effect of antibiotics on staphylococci. Antibiotiki 3 no.4:63-66 Jl-Ag '58   (MIRA 11:10)

1. Kafedra mikrobiologii (zav. - prof. V.S. Derkach) Khar'kovskogo nauchno-issledovatel'skogo instituta vaktsin i syvorotok imeni I.I. Mechnikova i kafedra mikrobiologii (zav. - prof. V.S. Derkach) Khar'kovskogo meditsinskogo instituta.
          (ANTIBIOTICS)
          (STAPHYLOCOCCUS)

DERKACH, V.N., kand.med.nauk

Study on the antitoxic properties of antibiotics. Vrach.delo
no.4:405-408 Ap '58   (MIRA 11:6)

1. Kafedra mikrobiologii (zav. - prof. B.L. Palant) Ukrainskogo
instituta usovershenstvovaniya vrachey i mikrobiologicheskiy
otdel (zav. - prof. V.S. Derkach) Khar'kovskogo nauchno-issledovatel'
skogo instituta vaktsin i syvorotok.
            (ANTIBIOTICS)
            (TOXINS AND ANTITOXINS)

DERKACH, V.N.

Sorption properties of toxins in relation to antibiotics.
Antibiotiki 5 no.3:116-119 My-Je '60.'   (MIRA 14:6)

1. Kafedra mikrobiologii (zav. - prof. B.L.Palant) Ukrainskogo
instituta usovershenstvovaniya vrachey.
          (ANTIBIOTICS)   (TOXINS AND ANTITOXINS)

DERKACH, V.N.

Sorption properties of toxins in relation to antibiotics in experiments in vivo. Antibiotiki 5 no.6:55-60 N-D '60.

(MIRA 14:3)

1. Kafedra mikrobiologii (zav. - prof. B.L.Palant) Ukrainskogo instituta usovershenstvovaniya vrachey, Mikrobiologicheskiy otdel (zav. - prof. V.S.Derkach) Khar'kovskogo nauchno-issledovatel'skogo instituta vaktsin i syvorotok imeni I.I.Mechnikova.

(TOXINS AND ANTITOXINS)   (ANTIBIOTICS)

DERKACH, V.N.

Detoxifying properties of antibiotics in respect to some
bacterial toxins. Zdravookhranenie 4 no.4:43-47 Jl-Ag '61.
(MIRA 14:11)

1. Iz kafedry mikrobiologii (zav, doktor meditsinskikh nauk
V.N.Derkach) - Kishinevskogo meditsinskogo instituta.
         (PSORIASIS)   (SAGE-THERAPEUTIC USE)

DERKACH, V.N.; GOL'BETS, I.I.

Effect of antibiotics on antigenic properites of diphterial toxins
and anatoxins in gel diffusion precipitation experiments. Antibiotiki
6 no.2:153-158 F '61.
(MIRA 14:5)

1. Mikrobiologicheskiy otdel (zav. - prof. V.S.Derkach) biokhimicheskiy
otdel (zav. D.M.Koshkina) Khar'kovskogo nauchno-issledovatel'skogo
instituta vaktsin i syvorotok imeni I.I. Mechnikova.
(ANTIBIOTICS)   (DIPHTHERIA)   (TOXINS AND ANTITOXINS)

DERKACH, V.N.

Detoxifying and disintoxifying properties of mycerin in relation
to the botulinus and staphylococcus toxins. Antibiotiki 6
no.11:1006-1009 N '61.   (MIRA 15:3)

1. Kafedra mikrobiologii (zav. - prof. B.L. Palant) Ukrainskogo
instituta usovershenstvovaniya vrachey, mikrobiologicheskiy otdel
(zav. - prof. V.S. Derkach) Khar'kovskogo nauchno-issledovatel'skogo
instituta vaktsin i syvorotok.
               (ANTIBIOTICS)   (TOXINS AND ANTITOXINS)
          (CLOSTRIDIUM BOTULINUM)   (STAPHYLOCOCCUS)

DERKACH, V. N.

Neutralizing properties of mycerin in relation to some bacterial toxins. Zdravookhranenie 5 no.2:40-44 Mr-Ap '62.

(MIRA 15:7)

1. Iz kafedry mikrobiologii (zav. doktor med. nauk V. N. Derkach) Kishinevskogo meditsinskogo instituta.

(ANTIBIOTICS)   (TOXINS AND ANTITOXINS)

DERKACH, V.N.

Mechanism of the action of antibiotics; effect of some antibiotics on the immunobiologic reactivity in animals under experimental intoxication. Izv. AN Mold. SSR no.7:47-54 '62.   (MIRA 16:2)
(ANTIBIOTICS)
(TOXINS AND ANTITOXINS)

DERKACH, V.N.

Influence of drug-induced anesthesia and the action of caffeine
on the effectiveness of antibiotics in experimental bacterial
intoxications. Zdravookhraneniye 6 no.2:14-17 Mr-Ap'63.
(MIRA 16:10)

1. Iz kafedry mikrobiologii Kishinevskogo meditsinskogo
institua (zav. prof. V.K.Derkach).

*

RELEACH V. P.
S

Mineral Resources

Concerning the Theory of Magnetic Separation of Weakly Magnetic Ores. V. P. Derkach. (*Izvestiya Akademii Nauk S.S.S.R., Otdelenie Tekhnicheskikh Nauk*, 1951, No. 6, 852-862). [In Russian]. Magnetic separators for weakly magnetic ores are discussed, and an analysis of magnetic and mechanical forces acting on pieces of ore is made.—V. G.

SOV/120-58-6-26/32

AUTHORS: Derkach, V. P., Katkov, P. A.

TITLE: An Instrument for the Visual Observation of the Amplitude Characteristics (Pribor dlya vizual'nogo nablyudeniya amplitudnykh kharakteristik)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 6, pp 111-112 (USSR)

ABSTRACT: The circuit of the instrument is shown in Fig.1. The first three tubes of the circuit form a rectangular pulse generator; the first tube is connected in a blocking oscillator circuit which produces narrow pulses; these are applied to the grid of the second tube and hence, after inversion and amplification, to the grid of the third tube; narrow rectangular pulses of positive polarity are obtained at the output of the third tube. The pulses are applied to the control grid of a pentode whose suppressor grid is supplied with a sawtooth voltage. This waveform modulates the amplitude of the pulses. The negative amplitude-modulated rectangular pulses from the anode of the pentode are applied to an amplifier tube, where they are inverted; from the anode of this tube, the pulses are fed to the input of a cathode follower which acts as a source of amplitude-modulated pulses. The

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An Instrument for the Visual Observation of the Amplitude Charac-
teristics

SOV/120-58-6-26/32

resulting signal can be applied to an investigated device;
the output pulses of this device are applied to the vertical
plates of an oscillograph whose horizontal plates are
actuated by the same sawtooth voltage which modulates the
pulse amplitude. The instrument proved successful in operat-
ion and was found useful in the measurement of the modulated
non-linearities. The paper contains 1 figure.

SUBMITTED: December 3, 1957.

Card 2/2

88997

9, 7140

S/119/61/000/001/001/013
B019/B067

AUTHORS: Glushkov, V. M., Corresponding Member of the AS UkrSSR,
             Doctor of Physics and Mathematics, Derkach, V. P., Engineer

TITLE: Tube With Successive Beam Splitting

PERIODICAL: Priborostroyeniye, 1961, No. 1, pp. 1 - 3

TEXT: A new electron-beam memory with successive splitting of the beam
was developed at the Vychralitel'nyy tsentr AN USSR (Computation Center
of the AS UkrSSR). In this tube, the cathode emits a broad electron beam
hitting four splitter plates. These plates constitute a fine grid
produced from a dielectric. Metal layers are applied to the inner side
of the fine slits (Fig. 1). 50% of these metal layers are electrically
connected with an upper or a lower terminal. The first plate consists of
one part and screens off half of the broad electron beam. The second
plate consists of two parts, each of which screens off a quarter of the
electron beam. The third plate consists of four parts, and the fourth
plate consists of eight parts, each of them screening off one-sixteenth

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Tube With Successive Beam Splitting

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B019/B067

of the electron beam (Fig. 2). If N plates are available, it is possible, by a proper choice of potentials in the two halves of the plates, to obtain (2^{2N}) memory cells by splitting the electron beam into two beams perpen- dicular to each other. This splitter-plate system causes the formation of a relief in the electron beam. The conditions for obtaining a relief and the adjustment of the relief after each computation process are studied.

Current density must be 20 microamperes per mm^2. For a tube of 64·64 memory cells with an area of 1 mm^2, the cathode area must be 12.8·12.8 cm to supply a current of about 165 milliamperes. To verify this method experimentally, a tube was designed which allows the signal to be directly observed on a screen. The tube contained a cylindrical cathode with a diameter of 30 mm, a system of splitter plates, a grid collector, and a target. The splitter plates consisted of 100µ thick high-quality mica. Their dimensions were 40·40 mm. In the center of the plate, two 1 x 20 mm, slits were punched out at a distance of 2 mm from one another and coated with conductors. Although experimental results were satisfactory, a number of mathematical and physical problems are still unsettled. The different

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88997

S/119/61/000/001/001/013
B019/B067

Tube With Successive Beam Splitting

location of the splitter plates produces negative effects on the acceler-
ating field of the electrons; the effect of the capacitance of the splitter
plates must be studied, etc. There are 3 figures.
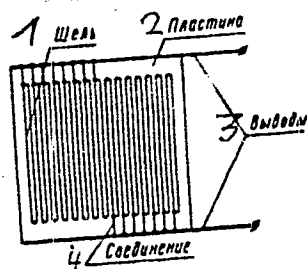
Рис. 1. Первый раздвигающий
электрод.

Card 3/4

88997

S/119/61/000/001/001/013
B019/B067
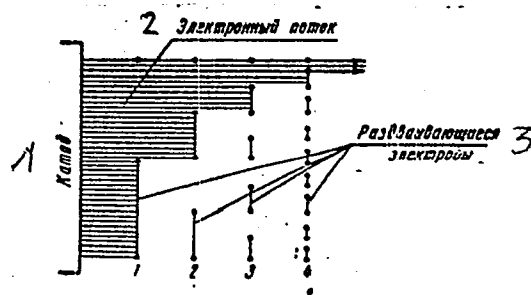
Рис. 2. Последовательное раздвоение луча четырьмя электро-
дами (1 — 4).

Legend to Fig. 1: 1) Slit; 2) plate; 3) terminals; 4) connections.
Legend to Fig. 2: 1) Cathode; 2) electron beam; 3) splitter plates.

Card 4/4

DERKACH, V. P.

Cand Tech Sci - (diss) "Method of consecutive branching of beams for memory /zapominayushchiye/ electron-beam tubes." L'vov, 1961. 12 pp; (Ministry of Higher and Secondary Specialist Education Ukrainian SSR, L'vov Polytechnic Inst); 150 copies; price not given; (KL, 6-61 sup, 216)

44289

S/185/62/007/012/004/021
D234/D308

9.7140

AUTHORS:

TITLE:

PERIODICAL:

TEXT:

Hlushkov, V.M. and Derkach, V.P.

Quickness of response of tubes with
consecutive beam bifurcations

Ukrayins'kyy fizychnyy zhurnal, v. 7,
no. 12, 1962, 1280 - 1283

The above tubes have been described by the
authors (Priborostroyeniye, no. 1, 1961; Avtomatika i priboros-
troyeniye, no. 3, 1960). It is found that the beam switching is
slowed down owing to the capacity formed by a part of conducting
slots of the gratings. In the worst case the switching time in-
crease is proportional to the sum of two largest adjacent resis-
tances, multiplied by the capacity due to 1/4 of slots in each
electrode. This capacity is difficult to determine analytically;
a method based on graphical representation of the field distri-
bution is recommended, and examples are given. If there are no
more than 1024 memory elements in the grating, millions of switch-

Card 1/2① S/119/61/000/001/001/013

Quickness of response of tubes ...   S/185/62/007/012/004/021
                                        D234/D308

ings per second are possible. There are 3 figures.

ASSOCIATION: Instytut kibernetyky AN URSR, Kyyiv
                      (Institute of Cybernetics, AS UkrSSR,
                      Kiev)

SUBMITTED: June 2, 1962

Card 2/2

GLUSHKOV, V.M.; DERKACH, V.P.

New principles for constructing the unilateral memory of electronic computers. Avtom.i prib. no.1:26-29 Ja-Mr '62.

(MIRA 15:3)

1. Vychislitel'nyy tsentr AN USSR.
(Electronic calculating machines)

DERKACH, V.P.; ALEKSANDROV, V.Ya.; ZGUROVETS, L.Ya.

Using electroluminescence in mimic flowsheets. Avtom.i prib.
no.3:7-8 Jl-S '62.   (MIRA 16:2)

1. Vychislitel'nyy tsentr AN UkrSSR.
     (Electroluminescence) --- (Electric controllers)

S/777/61/000/000/003/005

AUTHOR: Derkach, V. P.

TITLE: Cathode-ray tubes for the storage of binary information.

SOURCE: Voprosy vychislitel'noy tekhniki; mashiny, ustroystva, elementy i ikh primeneniye. Ed. by A. M. Novik. Kiyev, Gostekhizdat USSR, 1961, 74-89.

TEXT: The paper presents a functional analysis and extensive survey of existing literature on the functioning of cathode-ray tubes (CRT) used in modern digital electronic computers for the storage of binary information. The many types of CRTs employed in computers are classified and analyzed separately: (1) The ordinary oscillograph tube with a record derived from redistribution and charge-reversal counting. The advantage of this type of tube for the storage of information consists in their relatively low price (thanks to mass production) and their long service life attributable to the low ray fluxes. However, the small number of elementary cells, the low level of the output signal, the appreciable nonuniformity of the screen, and other shortcomings have impeded the adoption of this type of CRT in computer engineering. (2) The "potentialoscope" with barrier grid. CRTs of this type are relatively simple to manufacture, exhibit a simple control system for recording and read-out, have a greater information-storage capacity than the precedingly-described CRTs, and have an intense read-out signal. The selection of cells, as well as the differen-
Card 1/2

Cathode-ray tubes for the storage of S/777/61/000/000/003/005

tiation in the recording of one binary signal from another, is done by a quantitative
and not by a qualitative indication, which ensures a great dependability and accuracy
of the machine. However, the operational potentialoscope is complicated by the need
for a regular renewal of the recorded information. (3) Tube with a modulation of the
ray flux by the recorded charges. Contrary to the afore-described CRTs for the
reading of recorded binary bits, there is in this type of CRT no requirement for a
direct contact between the electronic ray with the target element that stores the in-
formation. This permits the repeated reading of recorded information without re-
recording. Literature data show that after 25,000 readings the signal intensity is
reduced by only 1.5%. The manufacturing complexity is the most outstanding short-
coming of this CRT. Dependability data are not yet available. (4) Tube with a
mosaic target and a cathode ray for the preservation of the potential relief. The
principal advantage of this type of CRT is the unlimited storage life of binary infor-
mation with any desired number of returns into the same unit. The shortcomings of
this type of CRT are discussed in detail. (5) Graphechon. (6) Selectron. The mode
of functioning of these last 2 types of CRT is described in detail. Current develop-
ments, particularly in the Selectron, are pointed out. There are 14 figures and 32
references (12 Russian-language Soviet and 20 English-language, of which 2 in
Russian translation).

Card 2/2

GLUSHKOV, V.M. [Hlushkov, V.M.]; DERKACH, V.P.

On the rate of operation of tubes with consecutive bifurcation of the
beam. Ukr. fiz. zhur. 7 no.12:1280-1284 D '62.   (MIRA 15:12)

1. Institut kibernetiki AN UkrSSR, Kiyev.
                              (Electron tubes)

L 11601-63   EWT(d)/FBD/FCC(w)/BDS/ES(t)-2   ASD/ESD-3/APGC   Pg-4/Pk-4/
                  P1-4/Po-4/Pq-4   GG/IJP(C)

ACCESSION NR: AT3002144   S/2923/62/000/000/0009/0016   8/
                                                                                79

AUTHOR: Derkach, V.P.

TITLE: New method of selecting target cells in multibeam devices

SOURCE: Vychislitel'naya matematika i tekhnika; trudy aspirantov Instituta kibernetiki AN USSR. Izd-vo UkrSSR, 1962, 9-16

TOPIC TAGS: multibeam electron device, bifurcated-beam electron device

ABSTRACT: A method of consecutive bifurcation of the electron beam, suggested by V. M. Glushkov, Member of the AN UkrSSR, is described. The bifurcation is effected by two dividing packages that consist of thin flat electrodes. Each electrode is represented by metal-coated dielectric plates that form "slots". In the first-from-cathode electrode, the metal coats of one-half of the slots are connected to the upper terminal, the coats of the other half, to the lower terminal. By applying suitable potentials, initial bifurcation of the electron beam can be achieved. The next electrode is equipped with 4 equal groups of slots, the first and the third of them being connected to one terminal, and the second and the fourth, to the other. Hence, by applying a higher and a lower voltage to these terminals, the beam can be further bifurcated, and only one-quarter of the initial beam will.

Card 1/2

L 11601-63
ACCESSION NR: AT3002144   2.

reach the electrode no. 3. The third electrode consists of 8 groups of slots, and
so on. N inputs can control 2 sup N/2 memory cells; with 40 inputs, any of
1,048,576 addresses can be selected, which is about 100 times as much as in the
selectron. Realization of the device with a hot cathode is considered inexped-
ient; an effective and uniform cold emitter is desirable. Potential distribution
patterns were studied on an electrolytic simulator. Also a special 16-beam,
boride-lanthanum-cathode, bifurcating-electrode experimental device was built and
tested. Orig. art. has: 5 figures.

ASSOCIATION: Institut kibernetiki AN USSR (Cybernetics Institute, AN UkrSSR)

SUBMITTED: 00   DATE ACQD: 25Apr63   ENCL: 00

SUB CODE: 00   NO REF SOV: 002   OTHER: 000

CLUE WORD: Computer Research

ch/at
Card 2/2

ACCESSION NR: AP4020313   S/0302/64/000/001/0028/0031

AUTHOR: Derkach, V. P. (Candidate of technical sciences); Zhivkova, T. P.; Korsunskiy, V. M.; Oreshkevich, A. I.

TITLE: Luminescent matrix for photorecording images produced by electronic computers

SOURCE: Avtomatika i priborostroyeniye, no. 1, 1964, 28-31

TOPIC TAGS: luminescent matrix, computer, computer output, computer output photorecording, EL-510 phosphor, EL-460 phosphor

ABSTRACT: Experiments with recording the output information of computers on luminescent 256 x 256-element plates ("matrices") and photographing it are described. Each element is 0.5 x 0.5 mm, and the distance between elements is 0.5 mm. A line-by-line exposure is used to ensure higher speed and contrast of the plates coated with EL-510 (green) and EL-460 (blue) phosphors.

Card 1/3

ACCESSION NR: AP4020313

Characteristic curves for two types of film are given. Symbol formation as shown in Enclosure 1 permits a recording rate of 700 symbols per sec; 21 lines, 40 symbols in each line, are used. The same plates permit the recording of drawings, sketches, etc. A nonlinear-resistance powder based on CdS can be used to increase the contrast of the plates. It is claimed that a plate treated with this powder can ensure a recording rate of 10,000 symbols/sec. Orig. art. has: 5 figures, 7 formulas, and 1 table.

ASSOCIATION: Institut kibernetiki AN UkrSSR (Institute of Cybernetics, AN UkrSSR)

SUBMITTED: 00   DATE ACQ: 31Mar64   ENCL: 01

SUB CODE: CP   NO REF SOV: 001   OTHER: 000

L 19449-65 , EWT(d)/EED-2/EWP(1)   Po-4/Pq-4/Pe-4/Pk-4   IJP(c)/AFTC(b)   BB/GG

ACCESSION NR: AP4049192   S/0102/64/000/005/0069/0074

AUTHOR: Derkach, V. P. (Kiev); Kukharchuk, M. S. (Kiev)

TITLE: Accuracy of conversion of a binary code into voltage by combining currents

SOURCE: Avtomaty*ka, no. 5, 1964, 69-74

TOPIC TAGS: code voltage conversion, digital analog conversion

ABSTRACT: Errors are estimated in the process of conversion of a binary code into voltage by means of combining equal currents in a binary ladder network consisting of fixed resistors. An electron-tube switch with an improved current stabilization is considered. Various noise sources are evaluated quantitatively, and their effect on the output voltage is estimated. Some experimental verification is claimed. Orig. art. has: 6 figures and 16 formulas.

ASSOCIATION: none

SUBMITTED: 08Jul63   ENCL: 00

SUB CODE: DP   NO REF SOV: 000   OTHER: 000

Card 1/1

CA

The action of dyes on typhus neurovirus. V. S. Der-kach and S. A. Blinkin. Med. expsl. (Ukraine) 1939, No. 1, 23-30; Chem. Zentr. 1940, II, 1508.—An investigation was made of the effects of different dyes on the neurovirus of typhus. The basic aniline dyes of the malachite green group and rosaniline and pararosaniline derivs. were found to be most active. The strongest action was shown by brilliant green and gentian violet; Me violet was less active while basic and acid fuchsin were still less so. Thionine was completely inactive; the same was true of the oxidation product of methylene blue, Azure 2, while methylene blue itself was active. Bismark Brown, neutral red and safranine showed only weak bactericidal activity. The acid dyes, eosin and alizarin red, showed either very slight bactericidal activity or none whatever.

M. G. Moore

A S A, A L A   METALLURGICAL LITERATURE CLASSIFICATION

DERKACH, V. S., M. G. GAYDAMAKA, AND YU. V. CHEBOTAREVA

"Study of the Antigenic Properties of the Nucleoproteins of Typhoid Bacilli," Trudy
Ukrainskogo instituta epidemiologii i mikrobiologii imeni Mechnikova (Transactions of the
Ukraine Institute of Epidemiology and Microbiology imeni Mechnikov), 1, 17-19, 1947

DERKACH, V. S.

"Pyocyanin and the Prospects for Its Practical Use," ZhMEI, 4, 51, 1947

DURMICH, V. G.

"The Antibiotic Sanazin." Zhur Mikrobiol, Epidemiol, i Immunobiol, No 10, p 60-64, 1951

Derkach, V. S.

Jan-Mar 53

USSR/Medicine - Immunology, Antibiotics

"The Mechanism of the Therapeutic Action of Antibiotics," V. S. Derkach, Corr Mem Acad Med Sci; A. P. Papkova

Vest Akad Med Nauk SSSR, No 1, pp 23-28

Deep, prolonged sleep produced by urethan or medinal lowers to the resistance of white mice to exptl staphylococci and streptococci infections. Drugs that strengthen the excitability of the central nervous system (e. g., caffeine, strychnine) in certain dosages also increase this resistance. Sleep produced by medinal or urethan lowers the therapeutic effect of penicillin. Caffeine and strychnine increase the therapeutic action of penicillin. Clinical investigation based on these exptl data should be carried out.

265 T 28

DERKACH, V.S.; PETROV, P.T., kandidat meditsinskikh nauk

Review of Danilo Samoilovich's "Selected Works." 2d ed.   V.S.Derkach,
P.T.Petrov.   Vest.AMN SSSR no.4:56-60 '53.   (MIRA 7:1)

1. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for Derkach).
   (Samoilovich, Danila Samoilovich, 1746-1805) (Medicine)

DERKACH, V. S.   Jul 53

USSR/Medicine - Dysentery

"The Combined Action of Antibiotics on Dysentery Bacilli," V. S. Derkach, O. S. Belaya,
A. M. Savchenko, F. A. Revis-Turchina

Zhur Mikro, Epid, i Immun, No 7, pp 33-35

Sonne bacilli are most resistant to synthomycin (I), sanazin (II) and gramicidin S
(III), Grigor'yev - Shiga bacilli least resistant. Flexner bacilli occupy an inter-
mediate position. Use of combinations I-III, I-II, and II-III in vitro increased the
bactericidal effect on all groups of bacteria by factors 4-32-64-128. I and II in
doses which protected 8-20% of white mice against virulent Sonne and Flexner cultures
or did not give any protection were found to protect 64-71.6% of the mice when used
together (I-II). On the basis of these findings, combinations of antibiotics were
used with good results on children.

267T45

SAVITSKAYA, E.K.; DERKACH, V.S., professor, direktor.

Anti-phage properties of the bacto-agar Zh medium (Author's abstract). Zhur. mikrobiol.epid.i immun. no.7:71-72 Jl '53.   (MLRA 6:9)

1. Ukrainskiy institut epidemiologii i mikrobiologii imeni Mechnikova v Khar'kove.   (Bacteriology--Cultures and culture media) (Bacteriophagy)
(Dysentery)

VOLOVICH, N.I.; KRASOVITSKAYA, A.M.; MIKULINSKAYA, R.M.; ZLATOPOL'SKAYA, R.D.;
    EDEL'SHTEYN, R.I.; SAVITSKAYA, E.K.; PARKHOMENKO, L.I.; DERKACH, V.S.,
    professor, direktor; ZIMINA, O.I.; SOKOLOV, G.S.; ISTOMINA, T.D.;
    GORDIYENKO, Ye.G.; KLYUCHNIKOVA, L.Sh.; NADTOKA, V.L.; KOCHINA, V.N.;
    AVTONOMOVA, L.V.; BEREZUB, L.G.; GOL'IDENBERG, R.A.; BELAYA, O.S.;
    SAVCHENKO, A.M.

Study of efficacy of the enteral immunization against dysentery. Authors'
abstract. Zhur.mikrobiol.epid.i immun. no.8:27 Ag '53.   (MLRA 6:11)

1. Ukrainskiy institut epidemiologii i mikrobiologii im. I.I.Mechnikova v
Khar'kove.   (Dysentery)

LEVI, M.I.; GUSEV, V.M.; KISLYAKOVA, L.N.; CHUYEVA, G.I.; KISELV, R.I.; DERKACH,
    V.S.. professor, ispolnyayushchiy obyazannost' direktora; ABRAMOV, S.U.,
    zaveduyushchiy.

    Natural nidi of lymphocytic choriomeningitis. Zhur.mikrobiol.epid.i immun.
    no.8:76-81 Ag '53.   (MIRA 6:11)

    1. Khar'kovskiy institut epidemiologii im. I.I.Mechnikova (for Derkach).
    2. Khar'kovskaya protivochumnaya stantsiya (for Abramov).
                                        (Meningitis, Cerebrospinal)

DERKACH, Y.S.; BELAYA, D.S.; SAVCHENKO, A.M.; REVIS-TURCHINA, F.A.

Combined effect of antibiotics upon dysentery bacteria. Zhur.mikrobiol. epid.i immun. no.4:80 Ap '54.   (MLRA 7:5)

1. Iz Khar'kovskogo instituta vaktsin i syvorotok im. Mechnikova.
   (Antibiotics) (Shigella dysenteriae) (Shigella paradysenteriae)

DERKACH, V.S.; BELAYA, O.S.

Experience in combined antibiotics treatment of chronic dysentery
in children. Zhur.mikrobiol.dpid. i immun. no.8:89 Ag'54. (MLRA 7:9)

1. Iz Khar'kovskogo instituta vaktsin i syvorotok im. Mechnikova
     (DYSENTERY)   (ANTIBIOTICS)

DERKACH, V.S.; BELAYA, O.S.; BULATSEL', A.M.; KVYAT, K.M.; TURMAN, Ye.P.;
—————————, Ye.V.; ZVYAGINTSEVA, A.M.

Effectiveness of combined antibiotic therapy for chronic dysentery.
Zhur.mikrobiol.epid.i immun. no.3:54-59 Mr '55.   (MLRA 8:7)

1. Iz mikrobiologicheskogo otdela (zav. prof. V.S.Derkach) Khar'-
kovskogo instituta vaktsin i syvorotok (dir. kandidat biologiche-
skikh nauk G.P.Cherkas) i profil'nykh yasley Kar'kova.
        (DYSENTERY, BACILLARY, therapy,
            antibiotics, combined ther.)
        (ANTIBIOTICS, therapy,
            dysentery, combined ther.)

2033. DERKACH V.S., BELAYA O.S., BULATSEN A.M., KHILOVNER S.I.,
GRINBERG G.I., KVYAT K.M. and ZVYAGINTSEVA L.M. Dept. of
Microbiol., Vaccine and Serum Inst., Kharkov. *Long term results
of combined antibiotic treatment of chronic dysentery
in children (Russian text) VRAC. DELO 1956, 6 (571-575)

In 1952 Derkach and Belaya introduced a method of combined treatment of dysentery,
with sintomycin (optically inactive chloramphenicol) and sanazin (synthetic pre-
paration of pyocyanin). Evaluation and modification of the method continued during
1952-1954, and in all 356 children were observed. The dose administered was
1-1.5 g. sanazin to 8-13.0 g. sintomycin (depending on the age of the child). In the case
of a prolonged illness or of persistent excretion of bacteria, a second course of
treatment was given. Long-term results were obtained with combined therapy
with sintomycin and sanazin in 328 children with chronic dysentery or car-
riers with ages ranging from 6 months to 5 years. One month after the end of
the treatment only 9.4% of 265 carriers continued to excrete dysentery bacilli.
Twenty-two months later they were still free from dysentery bacilli. A single
course of treatment is inadequate in some cases. This is particularly so in child-
ren who are weak or wasted. Apart from dermatitis, occurring in 1.4% of patients,
the treatment causes no complications.   Belova - Leningrad (XX, 7)

SUBJECT   : General problems of oncology. Tumors. Experimental Therapy

ABS. JOUR.   : RZBiol., No. 12 1958, No. 56406

AUTHOR   : Bernbach, V.S.

INST.   : Khar'kov Scientific Research Institute of Vaccines

TITLE   : Antibiotics Against Malignant Neoplasms

ORIG. PUB.   : Tr. Khar'kovsk. N.-i. In-ta Vaksin i Syvorotok, 1956, Vol.15, 15-34

ABSTRACT   : No abstract.

             'and Serm

CARD: 1/1

DERKACH, V.S.

CATEGORY	: Natural Products of ... ...ental Therapy
ABS. JOUR.	: RZHBiol., No. 12 1958, No. 56303
AUTHOR	: Derkach, V.S.
TITLE	: ... ...al Study of a ... Antitumor Preparation ... ...cide
ORIG. PUB.	: Antibiotiki, 1957, Vol.2, No.5, 40-44
ABSTRACT	: Aqueous extracts of agar cultures of a single microorganism possessed antitumor activity. As a result of chemical purification, dialysis, and lyophilization, the active preparation, called ...cide (X) was obtained in desiccated form. Chem- ical studies of X showed that it is, apparently, a polypeptide. X is fairly stable and is prac- tically non-toxic for experimental animals. X sup- pressed the growth of adenocarcinoma of the Ehr- lich type and of sarcoma 45 by about 50%. In ex- periments with mice the best therapeutic effect was produced by intravenous injection of X, while in experiments with rats, intraperitoneal injec-
CARD:	1/2

COUNTRY   :

SUBJECT   :

T. S. PUBL. : Zhurnal, No.   1958, No.

AUTHOR   :
ORIG.   :
TITLE   :

CARD. NO.   :

ABSTRACT   : ...tion was premature. In the tissues of the tumors
               following treatment with K, there were numerous
               areas of necrosis, and degenerative changes
               were noted in the tumor cells themselves. Bib-
               liography on table 12 titles. -- N.N.Men'shikova

*A Khar'kovskiy institut vaktsin i syvorotok imeni I.I.Mechnikova
i Khar'kovskiy meditsinskiy institut.*

CARD: 2/4

DERKACH, V.S., prof. (Khar'kov)

Neocide, a new cytotoxic antibiotic. Vrach.delo no.3:232-233
Mr'58   (MIRA 11:5)

1. Chlen-korrespondent AMN SSSR.
            (CYTOTOXIC DRUGS)
            (ANTIBIOTICS)

DERKACH, V. S., SAVCHENKO, A. M., SOGOMONOV, S. A., MUKHINA, N. A.,
GORGONKEL, D. M., LEYBOVA, I. M., BLAGODETELEVA, V. A., PISKAREVA, YE. V.
AVTONOMOVA, L. V., KONONENKO, A. P.

"The study of antitumor substances formed by microorganisms."

report submitted at the 13th All-Union Congress of Hygienists, Epidemiologists
and Infectionists, 1959.

DERKACH, V. S.; VOLVICH, N. I. ; BELAYA, G. S.; ZLATOPOL'SKAYA, R. D.;
ISHCHENKC-LENNIK, K. .; KHCTMSKAYA, R. Z.

"Combined treatment of children suffering from chronic dysentery."

Report submitted at the 13th All-Union Congress of Hygienists,
Epidemiologists and Infectionists. 1959

DERKACH, V.S.

Certain aspects of the study of neocid. Antibiotiki 5 no. 5:34-40
S-O '60.   (MIRA 13:10)

1. Mikrobiologicheskiy otdel Khar'kovskogo nauchno-issledovatel'-
skogo instituta vaktsin i syvorotok imeni I.I. Mechnikova,
kafedra mikrobiologii Khar'kovskogo meditsinskogo instituta.
            (ANTIBIOTICS)   (CYTOTOXIC DRUGS)

DERKACH, V.S., prof. (Khar'kov)

Antibiotics against cancer. Nauka i zhyttia 10 no.2:38-40
F '60.   (MIRA 13:6)

1. Chlen-korrespondent AMN SSSR.
        (ANTIBIOTICS) (CANCER)

LEVIN, Mark Mironovich, prof.; ZADOROZHNYY, B.A., dotsent, red.;
     BELOUSOV, V.A., prof., red.; BOKARIUS, N.N., prof., red.;
     VOROB'YEV, F.P., assistent, red.; GRISHCHENKO, I.I., prof., red.;
     DERKACH, V.S., prof., red.; KORSUN', A.Ya., dotsent, red.;
     KOSHKIN, M.L., prof., red.; KUDINTSEV, V.I., dotsent, red.;
     PIKIN, K.I., prof., red.; PRIKHOD'KOVA, Ye.K., prof., red.;
     POPOV, I.D., dotsent, red.; SOLOV'YEV, M.N., prof., red.;
     SHTEYNBERG, S.Ya., prof., red.; KHARCHENKO, N.S., prof., red.

[Repeated surgery in stomach diseases following operations]
Povtornye operatsii pri zabolevaniiakh operirovannogo zheludka.
Khar'kov, Izd-vo Khar'kovskogo gos.univ., 1961. 177 p.
(Kharkov. Medychnyi institut. Trudy, vol.58).   (MIRA 16:2)
                    (STOMACH—SURGERY)

DERKACH, V.S.

Therapeutic properties of "neocid" Antibiotiki 7 no.9:813-815
S '62.   (MIRA 15:12)

1. Kafedra mikrobiologii Khar'kovskogo meditsinskogo instituta
i mikrobiologicheskiy otdel Khar'kovskogo nauchno-issledovatel'-
skogo instituta vaktsin i syvorotok imeni I.I.Mechnikova.
                        (ANTIBIOTICS)

DERKACH, Ya.S.; ROMEYKO, V.S.

Finishing of plastic goods by abrasive polishing. Plast.massy
no.8:67-68 '61.

(Plastics)

Plast.massy
(MIRA 14:7)

YU T DERKACH and V, P, TYCHINSKIY

"Investigation of the Oscillations of the Space Charge in a Magnetron" from Annotations of Works Completed in 1955 at the State Union Sci, Res, Iust: Min. of Radio Engineering Ind,

So: B-3,080,964

DERKACH, Yu. T.

Category : USSR / Radio Physics. Generation and Conversion of Radio-   I-4
           Frequency Oscillations

Abs Jour : Ref Zhur - Fizika No 3, 1957, No 7261

Author   : Tychinskiy, V.P., Derkach, Yu. T.
Title   : Oscillations of a Space Charge Cloud in a Cylindrical Magnetron

Orig Pub : Radiotekhnika i elektronika, 1956, 1, No 2, 233-244; No 3, 344-
           357

Abstract : The article is devoted to a study of oscillations in a magnetron
           whose frequency is not related to the parameter of the resonator
           system. In the first part, the energy method is used to deter-
           mine the condition under which the static state of the electron
           cloud becomes unstable upon appearance of a synchronous layer.
           It is shown that the well-known Hartree function determines the
           natural frequencies of the electron cloud and its dynamic stable
           limit. A diagram is obtained for determining the possible spec-
           trum of the oscillations of the space charge cloud. The effect
           of dispersion os the waves on the spectrum of the oscillations
           is steady. It is established that the dispersion of the waves in
           the electron stream leads to a limitation of the spectrum of the

Card   : 1/2
                                  - 14 -

Category   : USSR / Radio Physics.   Generation and Conversion of Radio-   I-4
             Frequency Oscillations

Abs Jour   : Ref Zhur - Fizika No 3, 1957, No 7261

             excited frequencies and to a deviation from the Hartree formula,
             a deviation which increases with the diminishing number of the
             type of oscillation. An experimental investigation of the oscil-
             lations of the electron cloud have been carried on the series of
             multi-resonator magnetrons with cathodes of various types (tungs-
             ten direct-heated, tantalum, and indirectly-heated oxide cathodes).
             The apparatus and the experimental procedure are described. Oscil-
             lograms are given for the oscillation zones and for their spectral
             composition. The common features of the behavior of the oscilla-
             tions in different magnetrons, regardless of the difference in their
             construction and dimensions, are pointed out. The existence of dis-
             persion of the waves in the electron beam is experimentally confir-
             med. The periodic structure of the oscillation zones is establi-
             shed. The results of the experiments are in good agreement with the
             theoretical derivations of the first part of the article.
             Bibliography, 20 titles.

Card   : 2/2   - 15 -

DERKACH, Yu. I.

М. А. Миллер

Усиление... спутное...

10 ...
(с 18 до 22 часов)

Л. Н. ...,
Р. А. ...

С. Г. Константинов

...

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications in. A. S. Popov (VNORIE), Moscow, 8-18 June, 1959

11 ...
(с 10 до 16 часов)

...

DERKACH, Yu. T.

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORIS), Moscow, 8-12 June, 1959

9.2571

77781
SOV/109-5-2-14/26

AUTHORS: Tychinskiy, V. P., Derkach, Yu. T., Karpetskiy, V. V.

TITLE: Experimental Investigation of Ferrite Amplifier

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 2,
               pp 288-295 (USSR)

ABSTRACT: The subject of the present article is a report on
               tests of a ferrite amplifier (similar to the one
               M. T. Weiss, was using (see reference end of abstract)
               under a degenerate electromagnetic regime. A block
               diagram of the installation is shown in Fig. 1.
               A magnetron was used as a power supply for excitation,
               the power level of which was controlled by a thermistor
               bridge. Its signal was used by the sem-automatic re-
               corder of the power absorption spectrum in the ferrite
               at excitation frequency. A pulse klyston oscillator
               was the source of the amplfied pulse signal. The
               relations measured during the tuning of the ferromagnetic
Card 1/15   amplifier are shown in Fig. 2.

Experimental Investigation of Ferrite Amplifier   77781
SOV/109-5-2-14/26
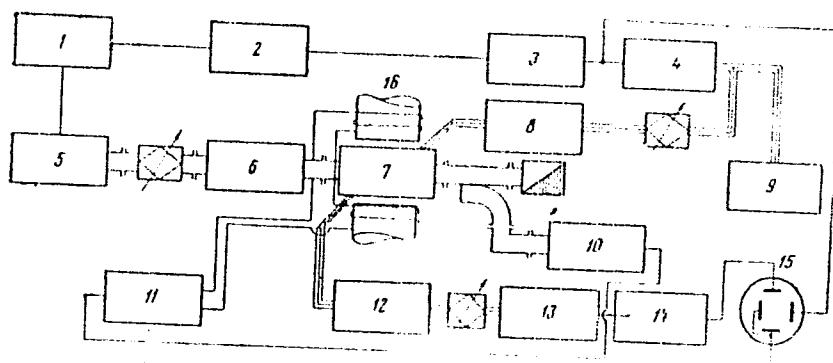
Fig. 1

Card 2/15   See card 3/15 for caption
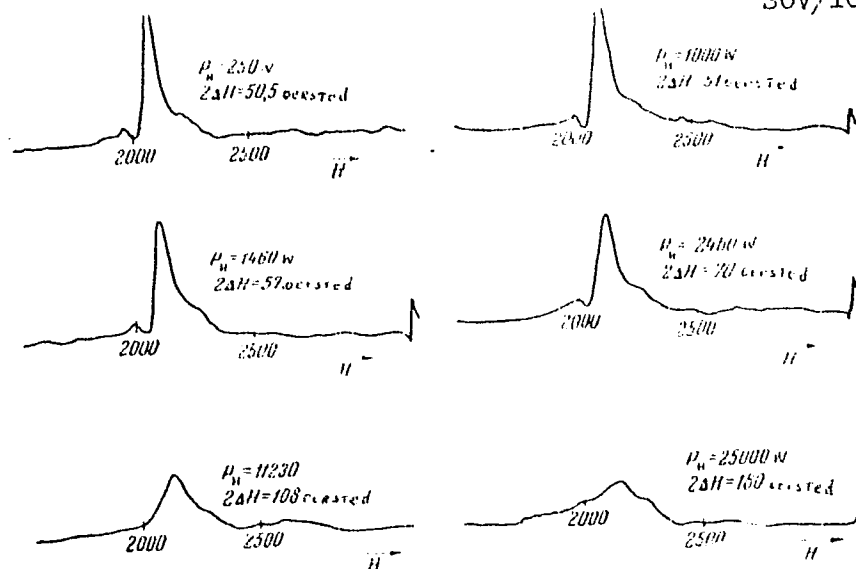
Experimental Investigation of Ferrite Amplifier   77781

SOV/109-5-2-14/26

Caption to Fig. 1. Block diagram of measuring installation: (1) modulator; (2) pulse generator; (3) pulse generator; (4) klystron block; (5) magnetron; (6) meter; (7) ferrite amplifier; (8) measuring circuit; (9) spectrum analyzer; (10) power meter; (11) semi-automatic recorder; (12) low frequency filter; (13) detector; (14) broad band amplifier; (15) oscillograph; (16) electromagnet.

Card 3/15

Experimental Investigation of Ferrite Amplifier   77781
SOV/109-5-2-14/26
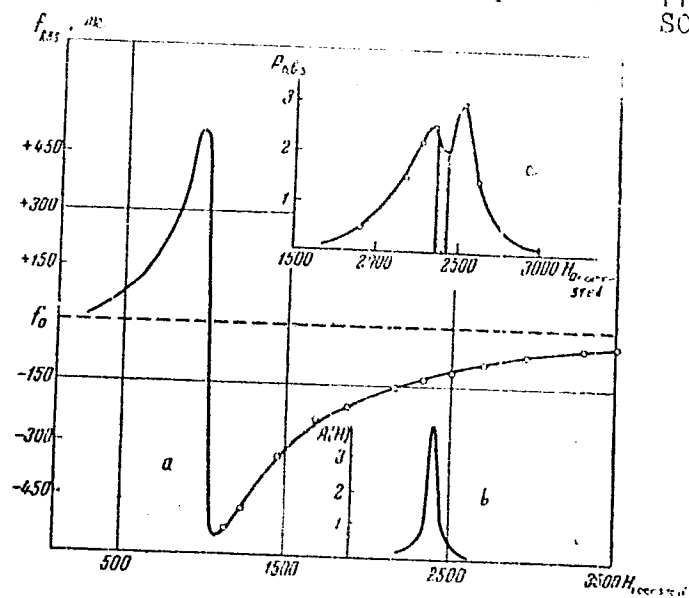
Card 4/15   Fig. 2. See card 5/ for caption

Experimental Investigation of Ferrite Amplifier   77781

SOV/109-4-2-14/26

Fig. 2. (caption) Graphs of SHF system tuning of
ferrite amplifier: (a) f_{res} of band resonator
versus magnetic field H_0; (b) tuning curve of band
resonator at signal frequency; (c) curve of power
absorption at excitation frequency.

The relation $f_m = 2f_{res}$ (H_0) was maintained with the aid
of a spectrum analyser. For a more effective excitation
of the amplifier by the magnetron, a study of power
absorption in the system at the excitation frequency
was required. Typical curves are shown in Figs. 4 and
5.

Card 5/15

Experimental Investigation of Ferrite Amplifier   77781
SOV/109-5-0-14/26
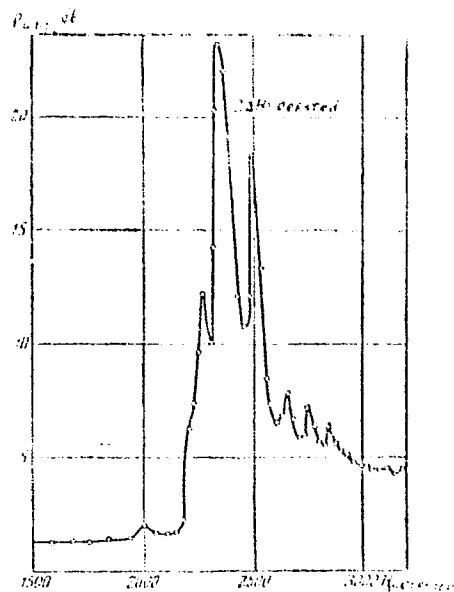
Fig. 4. Curve of
power absorption in
ferrite at excitation
frequency (klystron
level).

Card 6/15

Experimental Investigation of Ferrite Amplifier   77781
SOV/109-5-2-14/26

Fig. 5.

Card 7/15   See caption on card 8/15 for Fig. 5.

Experimental Investigation of Ferrite Amplifier   77781
                                                   SOV/109-5-2-14/26

        Caption to Fig. 5.

        Fig. 5. Curves of power absorption by ferrite at
        excitation frequency (magnetron level) (disc 3.8 x 1mm).

        It was expected that there would be no noticeable
        increase in precession angle of magnetization. The
        experiment proved the opposite. A typical graph
        (see Fig. 7) shows that precession angle θ calculated
        according to equation

$$\theta = \frac{h}{2\Delta H} \simeq \frac{0.103 \sqrt{\bar{P}}}{2\Delta H} ,$$

        increases by 2.5 times above the threshold. This
        permitted a selection of the working point of the
        power amplifier considerably above the threshold where
        the resonance curve starts widening. This lowers the
Card 8/15   demands from the ferrite element.

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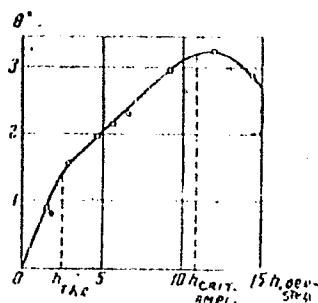
Fig. 7.   Saturation of the precession angle θ of
ferrite magnetization.

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The pulse from the klystron oscillator passing at the
time of a powerful magnetron pulse showed a flare as
it appears in Fig. 8.

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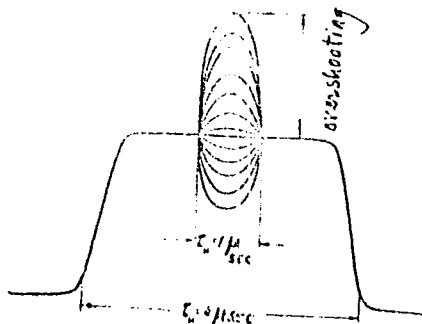
Fig. 8. Pulse of amplified signal on oscillograph
screen.

It was found that this flare is not due to tuning or
direct passage of excitation power, but is a pulse at
signal frequency f_s. The amplification coefficient
was measured, and at a 3 db level its dependence on
excitation power is shown on Fig. 9. The parametric
character of ferrite amplifier was proven by the

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following test
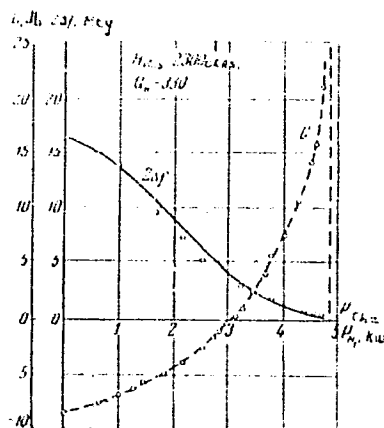
Fig. 9. Amplification, G, and bandwidth $2\Delta f$ versus
excitation power P_{excit}.

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One of the ferrite amplifiers was operated as an
oscillator and was used as a signal pulse source at
frequency $f_m/2$ synchronized with the magnetron. The
second device was fed by the same magnetron, underexcited
and operated as an amplifier of the first device (see
Fig. 11).
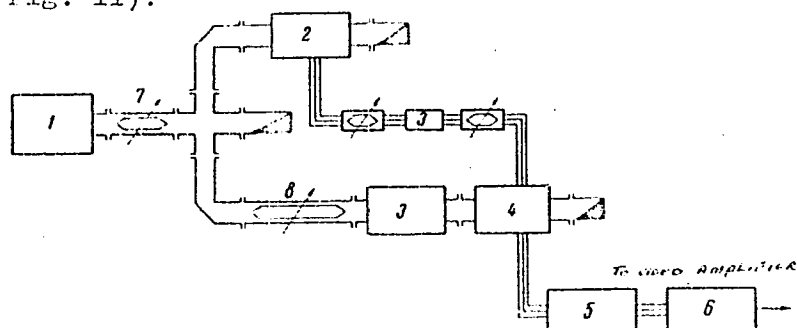
Card 12/15   Fig. 11. See card 13/15   for caption.

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Caption to Fig. 11.

Fig. 11. Block diagram of installation for measuring
phase relations: (1) magnetron; (2) ferrite oscillator;
(3) phase shifter; (4) ferrite amplifier; (5) filter;
(6) detector; (7, 8) attenuators.

When phase φ of the amplified signal changed at the
amplifier input, a periodic change in output power
was observed.   A similar dependence was observed at
the change of signal excitation phase.   This confirms
the parametric theory of ferrite amplifiers.   Con-
clusions: (1) Ferrite amplifiers of regenerative
type have a relatively narrow frequency band ($< 0.1\%$),
decreasing with an increased amplification.   (2)

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Relatively high threshold power imposed a pulse regime.
A continuous regime may be possible with better
cooling. (3) The amplifier operation as described
$(f_s = f_m/2)$ shows a phase dependence of amplification.
A semistatic operation or work under semistatic
electromagnetic conditions eliminates this drawback.
(4) The parametric theory of ferrite amplification
admits in principle an operation at an excitation
frequency lower than that of the signal $f_s = n/2$ f_{exc}
when $n > 2$; however, this requires a considerable in-
crease in excitation power and is impractical. A. I.
Popova supplied ferrite monocrystals. There are 12
figures; and 12 U.S. References. The 5 most recent
U.S. references are: M. T. Weiss, A Solid State
Microwave Amplifier and Oscillator Using Ferrites,
J. Appl Phys., 1957, 107, 1, 317; M. T. Weiss, A
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SUBMITTED: April 16, 1959

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E140/E163

AUTHORS: Tychinskiy, V.P., Perkach, Yu.T., and Karpetskiy, V.V.

TITLE: Experimental Investigation of the Degenerate Regime of
           a Ferrite Amplifier

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 6,
            pp 943-954 (USSR)

ABSTRACT: The theory developed by Mandel'shtam, Papaleksi,
           Divil'kovskiy and Rytov is employed to describe the
           characteristics of a ferrite amplifier in the degenerate
           electromagnetic regime. Such an amplifier was proposed
           by Suhl (Refs 1-3) and constructed by Weiss (Ref 7).
           At no time did Weiss and others compare the experimental
           results with the theoretical predictions. Suhl's
           quasi-linear theory neglects the effect of higher order
           non-linear magnetisation terms on the amplifier
           operation and neglects the phase relations between the
           amplified signal and the excitation, which are essential
           for the degenerate electromagnetic regime. This analysis
           is the purpose of the present article. The experimental
           system permitted the exact realisation of the condition
           that the pumping frequency is twice the signal frequency.

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Amplifier

The following partially inter-related questions were
studied: determination of the oscillation threshold of
the ferrite amplifier and its dependence on the loaded
Q of the resonator; the dependence of gain on the
excitation power at the most favorable and least
favorable phases for operation in reflection; the
dependence of amplification and bandwidth on excitation
power at random phase in operation in transmission;
the dependence of amplification on the phase angle in
transmission; comparison of the transmission and
reflection loads of the amplifier. Generally good
agreement between experimental and theoretical values is
obtained, except in the neighbourhood of limiting values
of VSWR where parasitic reflections, losses and other
forms of non-idealness of the measurement channel have
substantial influence. Certain higher-order non-linear
effects, outside the scope of the quasi-linear ferrite
amplifier theory are noted. At excitation powers
somewhat lower than threshold weak oscillations begin.
The finite amplitude of oscillation indicates the

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presence of non-linear attenuation terms.   The oscillation frequency differs from the optimal frequency of amplified signal at high gain factors (close to the oscillation threshold) and the optimum values of magnetic fields for oscillation and amplified signal do not coincide.   These phenomena are ascribed to the effects of signal detection at high amplitudes which causes a change in the longitudinal magnetisation component and a shift in the resonant magnetic field value.   At low oscillation amplitudes detection does not occur.   A monotonic change of resonant value of magnetic field with increase of excitation power indicates strong detection effects.

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There are 10 figures and 11 references, of which 4 are Soviet, 7 English.

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SUBMITTED: June 23, 1959

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SO: Knizhnaya letopis', No. 37, 3 September 1955

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DERKACHEV, A.A.

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AUTHOR: Derkachev, A.A.

TITLE: The determination of the least characteristic number of a
             matrix the elements of which are polynomials of the parameter
             λ

PERIODICAL: Referativnyy zhurnal. Matematika, no.3, 1960, 158,
             abstract 3477. (Tr. Novocherk. politekhn. in-ta, 1958,
             57/71, 19-25)

TEXT: For the system of equations   (1)

$$X = (\lambda A_1 + \lambda^2 A_2 + \ldots \lambda^m A_m)X + Y,$$

where X -- vector in the n-dimensional space, $A_1, \ldots, A_m$ -- quadratic
matrices of n-th order, the parameter λ is chosen so that (1) has a
solution different from zero. With the aid of the iteration method the
author determines the least characteristic number λ_1. Seeking the
solution in the form $X = Y_0 + \lambda_1 Y_1 + \lambda^2 Y_2 + \ldots$ then $Y_0 = Y$, $Y_1 = A_1 Y_0$,
$Y_2 = A_1 Y_1 + A_2 Y_0, \ldots, Y_k = A_1 Y_{k-1} + A_2 Y_{k-2} + \ldots + A_{k-1} Y_0$. Then λ_1 is found

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The determination of the least...

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according to the formula

$$\lambda_1 = \lim_{k \to \infty} \frac{y_k^{(i)}}{y_{(k-1)}^{(i)}} ,$$

where $y_k^{(i)}$ and $y_{(k-1)}^{(i)}$ are the i-th components of the vectors Y_k and Y_{k-1}. For the eigenvector X_1 belonging to λ_1 one obtains:

$$X_1 \approx Y_k.$$

The author shows that for systems (1) with a great number of unknowns this method is more profitable than the graphical method.

[Abstracter's note: Complete translation.]

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